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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/935,610  
Filing Date: August 24, 2001  
Appellant(s): LI ET AL.

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Jeffrey W. Gluck  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 3/31/2006 appealing from the Office action mailed 10/24/2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**NEW GROUND(S) OF REJECTION**

Claims 1-38 are rejected under 35 U.S.C. 5 101 as being directed to nonstatutory subject matter.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Byung Tae Chun, Younglae Bae, Tai-Yun Kim, Text Extraction in Videos using Topographical Features of Characters, August 22-25, 1999, IEEE, vol. 2, pages 1126-1130.

S. Antani, D. Crandall, R. Kasturi, Robust Extraction of Text in Video, Sept 3-7, 2000, IEEE, vol. 1, pages 831-834.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 22, 23, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Byung Tae Chun, Younglae Bae, Tai-Yun Kim, Text Extraction in Videos

using Topographical Features of Characters, August 22-25, 1999, IEEE, vol. 2, pages 1126-1130.

This article teaches extracting text from video by two main steps of extracting candidate areas using topographical features and then verifying text is in those areas. Section 3.1 discusses extracting candidate area for text area and section 3.2 discusses verification of candidates of text area. Section 2 discusses character regions having some fixed colors and sizes, and are densely located in the horizontal direction, as shown in Fig. 2. The colors and shapes are not regular in the background. Thus, text in the actual video will have movement and will likely have a size different than Chun's algorithm's text size. Therefore, Chun recognized the difference between original video with text and text overlayed onto the original video having original text and teaches to one of ordinary skill in the art to discriminate between the original text and the overlayed text .

A detailed analysis of the claims follows.

Claim 1:

Chun teaches a method of video processing to be performed by video processing equipment, the method (*See introduction.*) comprising:

extracting a pre-existing static overlay present in a video sequence (*See the introduction, paragraph 1 which discusses text appearing in video such as news where is often used to identify people, see figure 2, and to place identifying marks, see the upper left and lower right corners of figure 2. See section 5 which discusses detecting captions which are stationary text.*) said extracting comprising:

detecting at least one potential overlay in the video sequence (*Section 3.1 discusses extracting candidate area for text area.*); and

verifying that each at least one potential overlay is an actual static overlay that was previously added to an original video sequence to obtain said video sequence (*Section 3.2 discusses verification of candidates of text area. Section 2 discusses character regions having some fixed colors and sizes, and are densely located in the horizontal direction, as shown in Fig. 2. The colors and shapes are not regular in the background. Thus, text in the actual video will have movement and will likely have a size different than Chun's algorithm's text size. Therefore, Chun recognized the difference between original video with text and text overlayed onto the original video having original text and teaches to one of ordinary skill in the art to discriminate between the original text and the overlayed text. Captions are usually static. Also section 5 discusses "caption area" which implies a stationary area. Thus this article detects a static text overlay in the caption area.*).

Claim 2:

Chun teaches the method of claim 1, further comprising the step of post-processing at least one actual static overlay to remove extraneous pixels (*Figure 1 shows the post processing step of removing noise. Noise comprises extraneous pixels such as non-character regions inside the character regions, see section 3.3, thus, Chun teaches removing extraneous pixels.*).

Claim 3:

Chun teaches the method of claim 2, wherein said step of post-processing comprises the steps of:

computing a variance for each pixel of the at least one actual static overlay (*Section 3.3 discusses removing noise by using Isodata color clustering. The verified actual overlay area is analyzed to determine the color of each pixel to cluster the pixels in the overlay area.*); and

comparing the variance with a threshold to determine whether or not the pixel should be removed as an extraneous pixel (*The size of the color clusters are compared and if they are too small the cluster is removed which removes the pixels forming each cluster.*).

Claim 22:

Chun teaches the method of Claim 1, wherein said step of detecting comprises the step of:

performing template matching to determine the presence of a potential overlay (*Section 2 and 3.1 discusses using the topological features of characters to determine the presence of a potential overlay. Topological features of characters define a template for each character or groups of characters.*).

Claim 23:

Chun teaches the method of claim 22, wherein said step of detecting further comprises the step of:

determining a template (*The paragraph before section 3 discusses determine  $n$  and  $\alpha$ . The values of  $n$  and  $\alpha$  form a template.*) to be used in said step of performing template matching.

Claim 26:

Chun teaches a computer readable medium containing computer-executable code for causing a computer to implement the method of claim 1 (*Chun discusses using a computer to perform the text extraction in section 4. The discussed Pentium 4 computer using a program written in Visual C++ Ver. 5.0 has the program stored in a computer readable medium, the disk drive and RAM.*).

Claim 27:

Chun teaches a computer system comprising:  
a computer (*Chun discusses using a Pentium 4 computer to perform the text extraction in section 4.*); and  
a computer readable medium coupled to said computer and containing computer-executable code for causing a computer to implement the method of claim 1 (*Chun discusses using a computer to perform the text extraction in section 4. The discussed Pentium 4 computer using a program written in Visual C++ Ver. 5.0 has the program stored in a computer readable medium, the disk drive and RAM.*).



Claims 1, 22-27, and 35-38 are rejected under 35 U.S.C. 102(a) as being anticipated by S. Antani, D. Crandall, R. Kasturi, Robust Extraction of Text in Video, Sept 3-7, 2000, IEEE, vol. 1, pages 831-834.

This article teaches detecting static overlays on video by performing a frame to frame comparison of the video. In the section 3, second paragraph at lines 7-11 “artificial caption text” and “scene text occurring naturally in a video frame” is discussed.

The Antani article discusses the video having temporal information while the overlaid characters have less temporal information and the overlaid characters are contrasted by a changing background. Abstract and section 4. Text in the original video will more likely have movement from frame to frame. Applicant's arguments made reference to a stop sign example would most likely be part of a moving background while text overlaid onto the video will most likely be stationary. As discussed above Anatani on page 833 second column lines 11-12 states the detected text will be stationary. Therefore, Antani recognized the difference between original video with text and text overlaid onto the original video and teaches to one of ordinary skill in the art to discriminate between the original text and the overlaid text.

A detailed analysis of the claims follows.

Claim 1:

Antani teaches a method of video processing to be performed by video processing equipment, the method (See *introduction.*) comprising:

extracting a pre-existing static overlay present in a video sequence (See *the introduction, paragraph 1 second column which discusses text appearing in video.*) said extracting comprising:

detecting at least one potential overlay in the video sequence (*Section 2 discusses three stages, the detection, localization, and segmentation stages. The detection stage detects a potential overlay.*); and

verifying that each at least one potential overlay is an actual static overlay that was previously added to an original video sequence to obtain said video sequence (*Section 2 discusses the localization stage which uses many methods to localize the text. Section 2 discusses using many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over multiple frames to verify that a potential text is text. Section 2 also discusses using a tracking stage, this would inherently verify the potential text is an actual text. The Abstract and section 4 discusses the video having temporal information while the overlaid characters have less temporal information and the overlaid characters are contrasted by a changing background. Text in the original video will more likely have movement from frame to frame. Applicant's arguments made reference to a stop sign example would most likely be part of a moving background while text overlaid onto the video will most likely be stationary. Therefore, Antani recognized the difference between original video with text and text overlaid onto the original video and teaches to one of ordinary skill in the art to discriminate between the original text and the overlaid text.*).

Claim 22:

Antani teaches the method of Claim 1, wherein said step of detecting comprises the step of:

performing template matching to determine the presence of a potential overlay *(Section 2 discusses the detection of potential overlay in the detection stage which consists of many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over multiple frames. In order to determine if text exists then predefined knowledge of the text is compared with the current image to determine if a match exists. Predefined knowledge of the text is a template.)*.

Claim 23:

Antani teaches the method of claim 22, wherein said step of detecting further comprises the step of:

determining a template to be used in said step of performing template matching *(Inherently at some time the templates used by the program were determined.)*.

Claim 24:

Antani teaches the method of claim 22, wherein said step of verifying comprises the steps of:

performing frame-to-frame correlation of said potential overlay *(Section 2 discusses using many different localization algorithms whose outputs are fused in the the spatio-temporal decision fusion module over multiple frames.)*; and

comparing a result of the frame-to-frame correlation with a threshold to determine if the potential overlay is an actual static overlay or not (*In order to determine if text exists then predefined knowledge of the text is compared with the current image to determine if a match exists. Predefined knowledge of the text is a template of thresholds.*).

Claim 25:

Antani teaches the method of claim 24, wherein said step of performing frame-to-frame correlation (*See the discussion above for claim 24.*) comprises the steps of:

forming a mean square error over a set of frames from said video sequence, averaged over all of the pixels in said potential overlay (*This claim does not claim a use for the mean square error, thus, a reference that forms a mean square error over a set of frames teaches the claim. This claim does not claim how the mean square error is formed, thus, a reference that inherently forms the error teaches the claim. The specification in paragraph 0039 sets forth a specific formula for calculating the mean square error, however, the claim only broadly claims how the claimed mean square error is calculated. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The disclosed formula determines the average difference in intensities between a current frame and a subsequent frame. Antani inherently forms the mean square error since Antani in the localization stage fuses over several frames decisions from many localization algorithms which inherently*

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*has determined the average difference in intensities between frames in order to determine if text exists.).*

Claims 26 and 27:

Inherently the algorithm of Antani is performed by a computer having a computer readable medium containing computer-executable code for causing a computer to implement the claimed steps.

Claim 35:

Antani teaches a method of processing video to be performed by video processing equipment, the method, comprising:

extracting a pre-existing static graphical (*In the section 3 second paragraph lines 7-11 "artificial caption text" and "scene text occurring naturally in a video frame" is discussed. Artificial caption text is graphical because graphical includes many objects including text.*) overlay present in a video sequence, said extracting comprising:

detecting at least one potential overlay in a the video sequence (*Section 2 discusses three stages, the detection, localization, and segmentation stages. The detection stage detects a potential overlay.*), said detecting comprising the step of: performing template matching (*Section 2 discusses the detection of potential overlay in the detection stage which consists of many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over multiple frames. In order to determine if text exists then predefined knowledge of the text is compared*

*with the current image to determine if a match exists. Predefined knowledge of the text is a template.); and*

verifying that each at least one potential overlay is an actual static overlay that was previously added to an original video sequence to obtain said video sequence (Section 2 discusses the localization stage which uses many methods to localize the text. Section 2 discusses using many different localization algorithms whose outputs are fused in the the spatio-temporal decision fusion module over multiple frames to verify that a potential text is text. Section 2 also discusses using a tracking stage, this would inherently verify the potential text is an actual text. The Abstract and section 4 discusses the video having temporal information while the overlaid characters have less temporal information and the overlaid characters are contrasted by a changing background. Text in the original video will more likely have movement from frame to frame. Applicant's arguments made reference to a stop sign example would most likely be part of a moving background while text overlaid onto the video will most likely be stationary. Therefore, Antani recognized the difference between original video with text and text overlaid onto the original video and teaches to one of ordinary skill in the art to discriminate between the original text and the overlaid text.), said verifying comprising the step of:

performing frame-to-frame correlation of a potential overlay determined by said detecting step (Section 2 discusses using many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over multiple frames.).

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Claim 36:

Antani teaches the method of Claim 35, wherein said step of detecting further comprises the step of:

determining a template to be used in said step of performing template matching (*Inherently at some time the templates used by the program were determined.*).

Claim 37:

Antani teaches the method of Claim 36, wherein said step of determining a template comprises the step of:

performing addition or frame-by-frame subtraction of video frames (*This claim does not define the specifics of the addition of video frames or the frame-by-frame subtraction of video frames. This claim does not state if pixel values are added or frame numbers are added or if as in Antani the results of many frame analyses are fused or added or subtracted.*). This step does not state what function the addition or subtraction performs, thus, the scope of the claim is broad and is met by Antani when a template for detection stage is determined since the claim does not claim when the template is determined and when the addition or subtraction is performed. Therefore in this comprising claim all that is needed is for the reference to teach the claimed steps.

Claim 38:

Antani teaches the method of Claim 36, wherein said step of determining a template comprises the steps of:

segmenting video frames into foreground and background objects (*Text is foreground and video is the background. See the Abstract at the next to last and last sentences. Section 1 second paragraph lines 8-9.*);

performing correlation tracking to determine if any foreground object remains in the same absolute location in each video frame (*Section 2 discusses using many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over multiple frames to verify that a potential text is text. In the last sentence of section 2 the article teaches due to the fact that text lasts over several frames the text may be determined. The Abstract at the last sentence teaches determining if the text is static.*). This step does not state what function the segmenting and correlation tracking performs, thus, the scope of the claim is broad and the claim does not claim when the template is determined and when the segmenting and correlation tracking is performed. Therefore in this comprising claim all that is needed is for the reference to teach the claimed steps.



## **NEW GROUND(S) OF REJECTION**

### ***Claim Rejections - 35 USC § 101***

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-38 are rejected under 35 U.S.C. 101 as being directed to nonstatutory subject matter. This application appears to manifest a useful, concrete, and tangible result, see paragraphs 0004-0007, however, these claims do not. These claims are directed to abstract method of processing video to determine if a static overlay exists, however, they do not claim a useful, concrete, and tangible result of this abstract determination. The specification broadly defines many of the claimed terms in a dictionary at paragraphs 13-20. The term "video" is defined in paragraph 0018 as:

[0018] "Video" refers to motion pictures represented in analog and/or digital form. Examples of video include television, movies, image sequences from a camera or other observer, and computer-generated image sequences. These can be obtained from, for example, a live feed, a storage device, a firewire interface, a video digitizer, a computer graphics engine, or a network connection.

The term "video processing" is defined in paragraph 0019 as:

[0019] "Video processing" refers to any manipulation of video, including, for example, compression and editing.

The term "computer-readable medium" is defined in paragraph 0014 as:

[0014] A "computer-readable medium" refers to any storage device used for storing data accessible by a computer. Examples of a computer-readable medium include: a magnetic hard disk; a floppy disk; an optical disk, like a CD-ROM or a DVD; a magnetic tape; a memory chip; and a carrier wave used to carry computer-readable electronic data, such as those used in transmitting and receiving e-mail or in accessing a network.

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State Street Bank & Trust Co. v. Signature Financial Group Inc. (CA FC) 47 USPQ2d

1596, 1603 (7/23/1998). AT&T Corp. v. Excel Communications Inc. (CA FC) 50

USPQ2d 1447. On page 1603 first paragraph the CAFC wrote in State Street:

Under *Benson* , this may have been a sufficient indicium of nonstatutory subject matter. However, after *Diehr* and *Alappat* , the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a "useful, concrete and tangible result." *Alappat* , 33 F.3d at 1544, 31 USPQ2d at 1557. 7

On page 1603 paragraph labeled [4] the CAFC wrote:

[4] The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to -- process, machine, manufacture, or composition of matter-- but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. See *In re Warmerdam* , 33 F.3d 1354, 1359, 31 USPQ2d 1754, 1757-58 (Fed. Cir. 1994).

The reviewing court, the U.S. Court of Appeals for the Federal Circuit, has recognized that "certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., 'a useful, concrete and tangible result.' " *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.* 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1600-01 (Fed. Cir. 1998) (citing *In re Alappat*, 33 F.3d 1526, 1544, USPQ2d 1545, 1557 (Fed. Cir. 1994) (en banc)). This

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test derives from the following statement in Alappat: "This (claimed invention) is not a disembodied mathematical concept which may be characterized as an 'abstract idea, but rather a specific machine to produce a useful, concrete, and tangible result."

(Emphasis added.) Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. Alappat, Arrhythmia Research Technology Inc. v. Corazonix Corp 958 F.2d 1053, 22 USPQ2d 1033 (Fed. Cir. 1992), State Street, and AT&T v. Excel Communications, Inc. 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999) all involved transformation of data by a machine. The Federal Circuit specifically held that transformation of data representing some real world quantity into a useful, concrete, and tangible result (a waveform in Alappat, an electrocardiograph signals from a patient's heartbeat in Arrhythmia, or discrete dollar amounts in State Street) by a machine was a practical application of a mathematical algorithm, formula, or calculation that produced "a useful, concrete and tangible result," and that a method of applying a PIC indicator "value through switching and recording mechanisms to create a signal useful for billing purposes," AT&T, F.3d at 1358, 50 USPQ2d at 1452, a machine-implemented process, was "a useful, concrete, tangible result." See Lundgren, 76 USPQ2d at 1411-16 (APJ Barrett, concurring-in-part and dissenting-in-part) (noting that the State Street test so far is limited to machines and machine-implemented processes). The test in Alappat may derive from the definition of "machine": "The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. 252, 267 (1854). It was not explained where the useful, concrete and tangible" terms come from or how these are defined.

The State Street test applies once the claimed subject matter has been determined to fall within one of the statutory categories of 35 U.S.C. 5 101. The U.S. Patent and Trademark Office recently issued Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (Interim Guidelines), 1300 Off. Gaz. Patent and Trademark Off. (O.G.) 142 (Nov. 22, 2005), which state that the practical application that produces a "useful, concrete and tangible result" must be contained in the claims, *id.* at 146. Thus, it is not sufficient that a mathematical algorithm performed on a computer is capable of a practical application: the application must be contained in the claims. Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published on the USPTO website on October 26, 2005, at

[http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf)

and published in the OG 22Nov2005

<http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm>.

The claims are directed to "A method of video processing to be performed by video processing equipment" and "extracting a pre-existing static overlay present in a video sequence"(Claims 1-25 and 29-38), "a computer readable medium containing computer executable cod for causing a computer to implement the method of claim1" (Claim 26), "a computer system comprising: a computer; and a computer readable

medium containing computer executable cod for causing a computer to implement the method of claim1" (Claim 27), "a computer system comprising: a computer; a computer readable medium containing computer executable cod for causing a computer to implement the method of claim1; and an external processor, in communication with said computer, on which is performed the step of neural network processing" (Claim 28). These limitations are sufficient to put the claimed subject matter within one of the categories of 35 USC 101, so as to invoke the State Street test. Although the specification, at paragraphs 0004-0007, discloses a variety of applications, none of these applications are specifically recited in the claims. The specification further defines the claimed terms "video" and "video processing" very broadly. The claimed term "video" is defined as "Examples of video include television, movies, image sequences from a camera or other observer, and computer-generated image sequences". The claimed term "video processing" is defined as "any manipulation of video, including, for example, compression and editing". Therefore, the claims are directed to abstract video processing (any manipulation of video) and to the mathematical procedure of "extracting a pre-existing static overlay present in a video sequence" without claiming any practical application or useful, concrete and tangible result of the extraction. This appears to be one type of claim that the Federal Circuit would still consider to be unpatentable and is rejected for the reasons stated in the Interim Guidelines, 1300 O.G. at 146. Possibly it would take very little to convert the claims to statutory subject matter, but, under the present USPTO Interim Guidelines, the claims are considered to be nonstatutory.

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Claim 26:

This claim is additionally nonstatutory in view the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published on the USPTO website on October 26, 2005,

[http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf)

and published in the OG 22Nov2005

<http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm>) because they claim a computer readable medium which in view of the specification is a carrier wave.

The term "computer-readable medium" is defined in paragraph 0014 as:

[0014] A "computer-readable medium" refers to any storage device used for storing data accessible by a computer. Examples of a computer-readable medium include: a magnetic hard disk; a floppy disk; an optical disk, like a CD-ROM or a DVD; a magnetic tape; a memory chip; and a carrier wave used to carry computer-readable electronic data, such as those used in transmitting and receiving e-mail or in accessing a network.

These claims claim carrier wave signals as a computer readable medium because applicants paragraph 0014 defines computer readable medium as carrier wave. Claim 26 claims a carrier wave for causing a computer to implement the method of claim 1. In ANNEX IV Computer-Related Nonstatutory Subject Matter of the Interim guidelines a signal is held to be nonstatutory subject matter and since applicants carrier wave is a signal then these claims are nonstatutory. Applicant should note that amendments to the specification, such as deletion, may introduce new matter into the specification. Thus, an appropriate amendment to the claims is necessary to make the claims statutory.

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Claims 1-38:

These claims are additionally nonstatutory in view of the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility at page 23 because they preempt all general applications of the computer program and its mathematical formula. As discussed above claim 26 is a computer program which is evidence that method claims 1-25 and 29-38 as well as computer system claims 27 and 28 are based upon a computer program and in view of appellants specification, see paragraphs 0014, 0018, 0019, and 0064, claims 1-38 cover computer programs, software, and mathematical formula and claims 1-38 cover all substantial applications of the computer program, the software, and the mathematical formula. Paragraphs 0019 and 0064 state:

[0019] "Video processing" refers to any manipulation of video, including, for example, compression and editing.

[0064] It is contemplated that the methods for extracting textual and graphical overlays may be embodied as software on a computer-readable medium and/or as a computer system running such software (which would reside in a computer-readable medium, either as part of the system or external to the system and in communication with the system). It may also be embodied in a form such that neural network or other processing is performed on a processor external to a computer system (and in communication with the computer system), e.g., a high-speed signal processor board, a special-purpose processor, or a processing system specifically designed, in hardware, software, or both, to execute such processing.

Page 23 of the Guidelines discusses:

Even when a claim applies a mathematical formula, for example, as part of a seemingly patentable process, the examiner must ensure that it does not in reality "seek[] patent protection for that formula in the abstract." Diehr, 450 U.S. at 191, 209 USPQ at 10.

"Phenomena of nature, though just discovered, mental processes, abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work." Benson, 409 U.S. at 67, 175 USPQ at 675. One may not patent a process that comprises every "substantial practical application" of an abstract idea, because such a patent "in practical effect would be a patent on the [abstract idea] itself." Benson, 409 U.S. at 71-72, 175 USPQ at 676; cf. Diehr, 450 U.S. at 187, 209 USPQ at 8 (stressing

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that the patent applicants in that case did “not seek to pre-empt the use of [an] equation,” but instead sought only to “foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process”). “To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.” Diehr, 450 U.S. at 192, 209 USPQ at 10. Thus, a claim that recites a computer that solely calculates a mathematical formula (see Benson) or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection.

Thus, appellants claims when read in light of the specification preempt all substantial uses of the computer program, the software, and the mathematical formula forming applicants invention.

#### **(10) Response to Argument**

Appellants arguments have been fully considered, however, for the reasons given below they are deemed to be non-persuasive.

CLAIMS 1-3, 22, 23, 26, AND 27 ARE NOT ALLOWABLE OVER CHUN ET AL. BECAUSE CHUN ET AL. DISCLOSES ALL OF THE ELEMENTS OF THESE CLAIMS.

Of Claims 1-3, 22, 23, 26, and 27, only Claim 1 is an independent claim; Claims 2, 3, 22, 23, 26, and 27 all depend from Claim 1.

Appellant argues that Chun does not verify whether or not the text is an actual static overlay that was previously added to an original video sequence. This article teaches extracting text from video by two main steps of extracting candidate areas using topographical features and then verifying text is in those areas. Section 3.1 discusses extracting candidate area for text area and section 3.2 discusses verification



of candidates of text area. Section 2 discusses character regions having 'some fixed colors and sizes, and are densely located in the horizontal direction, as shown in Fig. 2. However, colors and shapes are not regular in the background area.'. Thus, text in the actual video will have movement and will likely have a size different than Chun's algorithm's text size. Therefore, Chun recognized the difference between original video with text and text overlayed onto the original video having original text and teaches to one of ordinary skill in the art to discriminate between the original text and the overlayed text. The article additionally discusses captions which are usually static and which are usually added to video as an overlay. Captions are referenced in the article at page 11-1127 near figure 2 and page 11-1129 sections 4 and 5. Also section 5 discusses "caption area" which implies a stationary area. Thus this article also teaches detecting a static text overlay in the caption area.

Additionally note appellants specification broadly defines "video" and "video processing" in paragraphs 0018 and 0019, thus, the claimed terms "video", "video sequence" and "video processing" should be read in light of the specification. When these terms are read in light of the specification it is clear the Chun article teaches "video", "video sequence" and "video processing".

In order to overcome this reference the detecting step and the verifying step need to be amended to distinguish applicants' detection and verification from the article's detection and verification.

CLAIMS 1 AND 22-27 ARE NOT ALLOWABLE OVER ANTANI ET AL.  
BECAUSE ANTANI ET AL. DISCLOSES ALL OF THE ELEMENTS OF THESE  
CLAIMS.

Of Claims 1 and 22-27, only Claim 1 is an independent claim; Claims 22-27  
depend from Claim 1, either directly or indirectly.

Appellant argues that Anatani does not verify that a potential overlay is an actual overlay. This article teaches detecting a potential overlay and verifying the potential overlay in a two stage process. The detection stage discussed in section 2 is detecting a potential overlay and at least the spatio-temporal stage or the tracking or the temporal processing of section 4 teaches determining if the potential text is actual text which actual text is overlay text due to the temporal processing used in verifying the text is an overlay text rather than a part of the moving background video. Thus, this article teaches detecting static overlays on video by performing a frame to frame comparison of the video. Appellants specification at paragraphs 0037 and 0038 discusses using temporal verification 22 to determine if the potential overlay is an actual overlay. The article in section 3, second paragraph at lines 7-11 discusses "artificial caption text" and "scene text occurring naturally in a video frame". This article discusses the video has temporal information while the overlaid characters have less temporal information and the overlaid characters are contrasted by a changing background. The article also teaches text in the original video will more likely have movement from frame to frame as discussed in the Abstract and section 4. This article additionally teaches on page 833 second column lines 11-12 that the detected text will be stationary. Thus, in a manner

similar to applicant's method, this article detects a potential overlay and verifies the potential overlay in a two stage process.

Additionally note appellants specification broadly defines "video" and "video processing" in paragraphs 0018 and 0019, thus, the claimed terms "video", "video sequence" and "video processing" should be read in light of the specification. When these terms are read in light of the specification it is clear the Chun article teaches "video", "video sequence" and "video processing".

In order to overcome this reference the detecting step and the verifying step need to be amended to distinguish applicants' detection and verification from the article's detection and verification.

CLAIMS 35-38 ARE NOT ALLOWABLE OVER ANTANI ET AL. BECAUSE ANTANI ET AL. DISCLOSES ALL OF THE ELEMENTS OF THESE CLAIMS.

Of Claims 35-38, only Claim 35 is an independent claim; Claims 36-38 depend from Claim 35, either directly or indirectly.

At page 12 lines 12-13 appellant makes reference to the preceding arguments. For the reasons given above those arguments are not persuasive. Appellant further argues that Anatani fails to disclose template matching and contains no disclosure of extraction of graphical overlays.

Anatani teaches template matching at Section 2 which discusses the detection of potential overlay in the detection stage which consists of many different localization algorithms whose outputs are fused in the spatio-temporal decision fusion module over

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multiple frames. In order to determine if text exists then predefined knowledge of the text is compared with the current image to determine if a match exists. Predefined knowledge of the text is a template.

Anatani teaches graphical overlays in the section 3 second paragraph lines 7-11 where "artificial caption text" and "scene text occurring naturally in a video frame" is discussed. Artificial caption text is graphical because graphical includes many objects including text. These claims are open ended comprising claims, thus, an embodiment covered by the claims anticipates if it is before and infringes if it is after. Appellants specification states the same verification process is used on textual and graphical overlay, see the abstract and paragraphs 0061, and states the same potential detection step, template matching, may be used to detect textual and graphical overlay, see paragraph 0062. Since graphical includes text and since both of appellants steps may use the same analysis algorithm then the textural embodiment of Anatani is covered by these claims and thus teaches the claimed invention.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

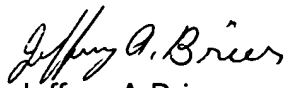
This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.


(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

  
Jeffery A Brier  
Primary Examiner  
Division 2628

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

  
**JOHN K. PENG**  
**QUALITY ASSURANCE SPECIALIST**

Conferees:

SPE Michael Razavi



SPE Richard Hjerpe

